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Before the
Federal Communications Commission
Washington, D.C. 20554

SEP 29 1992

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of

Amendment of Parts 21, 22, 23, and 25 of) CC Docket No.92-160
the Commission's Rules To Require Reporting)
of Station Frequency and Technical)
Parameters for Registration by the)
Commission with the International Frequency)
Registration Board)

COMMENTS OF
NATIONAL SPECTRUM MANAGERS ASSOCIATION
ON NOTICE OF PROPOSED RULEMAKING

NATIONAL SPECTRUM MANAGERS ASSOCIATION, INC.
Sambran Sandoval
President

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September 25, 1992

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COMMENTS OF
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ON NOTICE OF PROPOSED RULEMAKING

1. On July 30, 1992, the Commission released a NOTICE OF PROPOSED RULEMAKING ["NOTICE"] to amend Parts 21, 22, 23, and 25 of the Commission's Rules to require reporting of station frequency and technical parameters for registration by the Commission with the International Frequency Registration Board ["IFRB"].
2. The National Spectrum Managers Association, Inc. ["NSMA"], established in 1984, is a voluntary association of individuals involved in the frequency coordination of terrestrial microwave and satellite earth stations. The NSMA's role is to supplement the Commission's coordination rules with procedural and technical recommendations developed in an open industry forum which consists of coordinators, licensees, and manufacturers. Our objective is to make the frequency coordination process more effective and/or more efficient.
3. In its comments, the NSMA will propose that the Commission evaluate other, more effective methods of electronic data transfer and adopt error checking methods in the transfer. The NSMA will provide copies of the two formats currently utilized by the coordinating industry and request that the Commission adopt these formats and extract those items necessary to meet its own needs and those of the IFRB. Furthermore, the coordinating distances for international exchange should be changed to meet the current industry standard.

4. The NSMA supports electronic filing with the Commission. The significant mutual benefits to electronic filing are savings in time and manpower and improved interference protection through establishment of an accurate database. The benefit of filing data in computer readable format for interference protection across international boundaries is clear. Regardless of any existing bilateral agreements for data exchange [NPRM footnote 3], it would seem most advantageous to use the same procedures for reporting near all borders. Successful completion of this proceeding should make many of the existing bilateral agreements obsolete.
5. The NSMA has already developed two electronic formats for use in the industry. These formats would be most suitable to meet the needs of the Commission, the IFRB, the coordination community, and the NSMA. The first format has been developed as an electronic format for the transmission of prior coordination notices on an on-going basis. This format reflects all of the comprehensive technical details for effective interference analysis. Attached as Addendum #1 is the format currently used by NSMA for its ongoing activity. The NSMA recommends that the Commission adopt this format and extract those data items that are required for Commission and IFRB needs.
6. The second format has been developed for the bulk transfer of all existing licensed and applied-for microwave systems to allow for establishment of a base-line database. This procedure was primarily developed to allow for the exchange of data between US operators and their counterparts in Canada. Attached as Addendum #2 is the format currently used by NSMA for its bulk data transfer activity. The NSMA recommends that the Commission adopt this format and extract those data items that are required for Commission and IFRB needs.
7. The proposed rule for point-to-point microwave paths, specifies a 35-mile distance that is far from adequate [Section 21.14(a)]. The recently-revised NSMA guideline for coordination specifies a contour distance of 250 miles within 5 degrees of the antenna main beam [reduced to 150 miles for frequencies over 15 GHz] and 125 miles outside of the main beam [reduced to 80 miles for frequencies over 15 GHz]. Adopting these distances for triggering the international filing requirement will provide for adequate frequency coordination and interference protection.
8. The existing bilateral agreements will need to be replaced by new bilateral agreements [or a single multilateral agreement] to use identical data file formats and contour distances. Multiple file formats will create excessive and unnecessary software development and maintenance costs for all parties. An imbalance in coordination contours will lead to inadequate

interference protection with respect to one side of the border.

9. The Notice proposes restricting the magnetic filing medium to 3-1/2 inch high density [1.44 MB capacity] floppy diskettes. The required filing information must be submitted on a diskette and every subsequent change to that filing will also require another diskette. In 1987, the NSMA began the study of using a magnetic or electronic process as an alternative medium to that of a paper copy of the Prior Coordination Notice ["PCN"]. It was quickly determined that a very large quantity of diskettes would be required that would become very costly to the frequency coordinators using these magnetic PCNs in place of paper copies.
10. A series of experiments were conducted using various Electronic Mail ["E-Mail"] providers to determine if an electronic PCN ["E-PCN"] could be easily sent via E-Mail to the many common carrier frequency coordinators. The results of the experiment clearly demonstrated the E-PCNs could be sent via E-Mail with no difficulty or loss of data.
11. The NSMA recognizes that in all cases it may not be prudent for a coordinator to use E-Mail as the medium for data transfer, therefore, we feel that alternative media should be accommodated in the rules. Applicants filing with the Commission should be allowed to choose from several alternative filing media including, 5-1/4 inch [1.2 MB capacity] or 3-1/2 inch [1.44 MB capacity] high density floppy diskettes as well as electronic mail. The NSMA recommends that the Commission change the minimum level of DOS to DOS 3.3. This is the minimum level which will directly support the 3-1/2 inch high-density floppy diskette proposed by the Commission as well as the other diskette formats. In the event filing large quantities of data is required, 18-track cartridge or 9-track reel magnetic tape may be appropriate.
12. The proposed magnetic filing process provides no method to ensure that the magnetic data received by the Commission is what was actually sent by the filer. There has been no provision made in the design of the magnetic format to generate a data checking mechanism. The NSMA in the development of their E-PCN format specifications has included a Cyclic Redundancy Check ["CRC"]. An algorithm common to all E-PCN participants is used to determine if the data transmitted was in fact the data that was received. If the CRC fails at the receiving end, a request to re-transmit the file can be quickly issued. The NSMA encourages the Commission to utilize some standard mechanism to insure the integrity of the transmitted data.
13. The proposed data format is a fixed field format. The NSMA in

their studies of the most efficient way to format data for the purposes of electronic transfer have found that the use of a fixed field is inefficient. If a field delimiter character such as a tilde (~) is used, filers could omit optional data fields by merely indicating a null field via a double tilde (~~). Furthermore, by using a free form field format, as opposed to a fixed length field format, data input errors are reduced since data entry is limited to only that data which is necessary and it is not necessary to left or right justify specific data fields.

The NSMA has conducted E-Mail experiments using a free form field format with the tilde (~) character as the field delimiter. The results of the experiments have shown that the data is transmitted without any loss of information. Initial experiments five years ago were made using the fixed field format. This was replaced by the free form format method since it provides a more compact method of electronic data transfer and error checking.

Therefore, the NSMA recommends that the free form field format be utilized with a delimiter character such as the tilde (~) to reduce the physical size of the electronic data being transmitted.

14. The Notice proposes a detailed format for terrestrial Point-to-Point microwave filings that includes some of the primary information necessary for both Commission licensing and interference protection as well as for IFRB needs. While the data requested may meet the FCC licensing needs, the NSMA believes that it lacks the comprehensive technical details to effectively evaluate interference protection and maximize spectral efficiency.

Antenna specifications are required in the industry coordination efforts now for effective interference analysis. The antenna manufacturer and model number assuming that the radiation pattern has been previously filed should also be furnished. Without this information, it becomes necessary to utilize a standard FCC radiation pattern. Current antenna technology significantly exceeds the FCC standard pattern.

Equipment manufacturer, model number, and loading should also be required. Without this information the interference protection objectives cannot be determined and the default to a worse case objective must be assumed.

15. The Notice proposes a detailed format for Satellite Earth Station filing that includes the primary information necessary for both Commission licensing and interference protection as well as for IFRB needs. The coordination community uses the antenna centerline and the ground elevation above mean sea

level (AMSL) to conduct interference analysis and to resolve potential interference cases. The NSMA recommends that this data be added to File 1 of Attachment 3 of the NPRM.

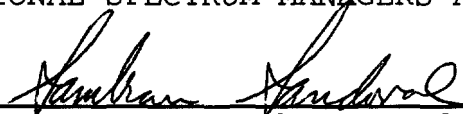
16. The Notice requests comments on Attachment 3 - The current coordination process for shared bands include all the data contained in Files 1 through 5 and has proven very successful both domestically and in areas that overlap with either Canada or Mexico. The NSMA recommends that the information requested in Files 1 through 5 be required in the future, based on the stated objective of insuring interference protection. This simplified format is also suggested for submission to the IFRB rather than the details. The NSMA recommends that a modified submission to the IFRB be adopted that is restricted to the items listed in Files 1 through 5 of Attachment 3 of the NPRM which will allow for comprehensive interference analysis and frequency coordination.

In its comments, the NSMA has proposed that the Commission evaluate other, more effective methods of electronic data transfer and adopt error checking methods in the transfer. The NSMA has provided copies of the two formats currently utilized by the coordinating industry and requests that the Commission adopt these formats and extract those items necessary to meet its own needs and those of the IFRB. Furthermore, the coordinating distances for international exchange should be changed to meet the current industry standard.

Respectfully submitted,

NATIONAL SPECTRUM MANAGERS ASSOCIATION, INC.

By:



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September 25, 1992

Terrestrial Microwave Prior Coordination Notice (PCN) Format

This document contains the recommended format for the electronic transfer of Terrestrial Microwave Prior Coordination Notices (PCNs).

1. General Information.

A. In the field description tables, all fields marked 'Req' are required for intra-United States of America coordination only and must be included. That is, transborder coordinations may require the use of less or more fields for proper exchange of PCN data between American and Canadian companies or American and Mexican companies. Fields marked 'Con' are conditional, but may be required. If the conditions are not obvious, they are listed. Fields marked 'Opt' are optional. Fields marked 'Info' are informational and, if included, are used for verification.

The format of the PCN record is generic. That is, it is to be used for both Terrestrial and Earth Station EPCNs. When using the format for Terrestrial coordination the Earth Station specific fields are null, and vice versa when it used for Earth Station coordination. Specifically, fields 22, 23, and 24 are used only for Earth Station PCNs. All other fields may be used for either na Earth Station coordination or a Terrestrial coordination.

B. For increased readability, use both upper and lower case letters for descriptions and narratives.

C. The Electronic Terrestrial Microwave PCN consists of one PCN record followed by an even number of Path records. If a PCN is informational, there might not be any Path records.

D. The fields are separated with a tilde (~) and do not require justification or padding. There must be one delimiter (~) per field in each record whether the field is blank or not. An asterisk (*) in both the status code and polarity code for a blank frequency signifies the end of meaningful data in the Path Record. Only printable ASCII characters can be used for data. Each PCN and Path record is followed by a <CR> and a <LF>.

E. Use the two-character United States Postal Service standard abbreviation for the State Code, or the two-character Canadian Postal Service standard abbreviation for the Province Code.

F. There is sufficient room in all numeric fields for a minus sign (-) and, if needed, a decimal point, (.). If no sign is entered, the value is positive. If no decimal point is entered, the number is a whole number.

G. Passive repeaters will have one pair of Path records from Station A to the repeater and a second pair from the repeater to Station B.

2.0. PCN Record Description

The PCN record contains data describing the entire PCN, including who is doing the coordinating and for which Owner/Licensee it is being done. The relationship of this PCN to the previous PCN is included for tracking purposes.

As plans change, paths and frequencies may be removed or added from the PCN, or the data itself may be changed. Five fields in the PCN record reduce confusion by linking this PCN to a previous PCN. The fields and their numbers are as follows: Internal ID(4), PCN Date(5), PCN Type(25), Previous PCN Internal ID(26) and Previous PCN Date(27).

For example, if an Owner/Licensee wants to add a fourth hop to a PCN already in coordination, he/she would send a second PCN showing all four hops. In this case, field 25 of the second PCN would contain an 'S' to indicate this PCN supercedes another, and fields 26 and 27 would contain the PCN ID and PCN Date, respectively, of the superceded PCN.

These linking fields are used with fields at the path and frequency level. See Section 2.2.1 and 2.2.2 for more information on these fields.

Table 1 gives a detailed description of the PCN record.

Table 1. PCN Record Fields

Field	Max Length	Description of Data Field	Con/Opt/Req
1	2	Type of Coordination	Req
		Refer to Attachment 1	
2	15	Coordinating company code	Req
		- Assigned by FCC or Canada	
		- 0000 if no code assigned	
3	1	Coordinating company code suffix	Opt
		-Use for alternate mailing address	
4	11	PCN Internal ID	Con
		- Req for expediting trans-border coordination	
5	6	Date this PCN was issued	Req
		- MMDDYY	
6	30	Frequency Coordinator name	Req
7	30	Frequency Coordinator title	Info
8	30	Frequency Coordinator street address	Req
9	22	Frequency Coordinator city	Req
10	2	Frequency Coordinator state	Req
11	10	Frequency Coordinator ZIP code	Req
12	10	Frequency Coordinator telephone	Req
13	15	Owner/Licensee company code	Req
		- Assigned by Frequency Coordinator	
		- 0000 if no code assigned	
14	1	Owner/Licensee code suffix	Opt
		- Use for alternate address	
15	40	Owner/Licensee name	Req
16	30	Owner/Licensee street address	Req
17	22	Owner/Licensee city	Req
18	2	Owner/Licensee state	Req
19	10	Owner/Licensee ZIP code	Req

Table 1. PCN Record Fields (Cont'd)

Field	Max Length	Description of Data Field	Con/Opt/Req
20	60	PCN site , hop or route description	Req
21	180	PCN description and purpose	Opt
22	6	Start of operation date	Con
		- MMDDYY	
		- Req if Temporary Earth Station	
23	6	End of operation date	Con
		- MMDDYY	
		- Req if Temporary Earth Station	
24	10	On-site Phone Number	Con
		- Req if Temporary Earth Station	
25	1	PCN type code	Req
		- C:Cancel.	
		- I:Informational PCN only	
		- N:New PCN. No previous PCN.	
		- R:Renewal PCN. No changes.	
		- S:Superceding PCN	
26	11	Previous PCN Internal ID	Con
		- Req if field 25 is R, C, or S	
27	6	Date of previous PCN	Con
		- MMDDYY	
		- Req if field 25 is R, C, or S	
28	1	Owner/Licensee request	Req
		- A: Site added with this PCN	
		- C: Change existing site with this PCN	
		- D: Turn down existing site	
		- N: No Change from previous PCN	
		-R: Remove PCN from Coordination	
		- U: Turn up new site	

Table 1. PCN Record Fields (Cont'd)

Field	Max Length	Description of Data Field	Con/Opt/Req
29	1	PCN Coordinate System	Req
		refer to Attachment 2	
30	6	Requested reply date	Con
		- MMDDYY	
		- Req if field 25 is N, R, or S	
31	2	Number of Case records or pairs of path records	Req

Attachment 1

Types of Coordination

The following abbreviations are to be used in Field 1 of the PCN Record Description:

1. CC - Common Carrier (terrestrial)
2. OF - Operational Fixed (pvt)
3. TV - Television
4. ES - Earth Station
5. CE - Canada Earth Station
6. CT - Canada Terrestrial
7. ME - Mexico Earth Station
8. MT - Mexico Terrestrial

Attachment 2

Coordinate System Designators

The following alphabetic or numeric characters are to be used in Field 29 to indicate the coordinate system used in the PCN to describe the site locations' latitude/longitude coordinates.

Character	Coordinate System
0	No coordinate system since PCN is only informational.
1	North American Datum83 (NAD/83)
2	North American Datum27 (NAD/27)
3	
4	
5	
6	
7	
8	
9	
A	
B	
C	
D	
E	
F	
G	

2.2. Path Record Description

Path records contain all the technical information necessary to perform interference calculations, including location, antenna, equipment, and frequency information. There is a separate Path record for each direction on a hop. All frequencies in a band on a single transmitter and receiver pair of antennas and equipment should be grouped together on a single Path record. If automatic power control (APC) is used then fields 40 and 41 are required and the APC study must be attached to the PCN as ASCII data set delineated by tildes.

There will always be a pair of Path records for each hop. The first record of each pair will have an 'A' suffix to the record number; the second, a 'B'. Each A/B Pair will have the same record number. If a transmit frequency in one direction has no corresponding frequency in the opposite direction, some of the data fields in the pair of Path records will be empty.

2.2.1. Links to Previous Paths

As PCNs are superseded, time may be wasted processing the whole PCN instead of only the changed parts. Many fields are used to reduce this work. The Owner/Licensee Request field, (2), shows what the

Owner/Licensee wants to do with this path. The Path Change field, (3), indicates if there is a change in the path that the Owner/Licensee wants to prior-coordinate.

Other fields show if changes have been made in a particular section of the PCN. The fields and their numbers are as follows: Latitude/Longitude Change Code(7), Transmitter Change Code(17), Receiver Change Code(24), Diversity Change Code(31), Transmit Power Change Code(38), Equipment Change Code(40), Amplifier Change Code(46) and Loading Change Code(52).

2.2.2. Links to Previous Frequency

As PCNs are superseded, frequencies being prior-coordinated can be added, deleted, or have their polarization changed. The Transmit Frequency Status field shows the status of these frequencies as of the PCN Date. A frequency being prior-coordinated is considered 'added' the first time it shows up on a PCN. A frequency is considered 'changed' on the first superseding

PCN showing the polarization change. Otherwise, a frequency being prior-coordinated is considered 'not changed.'

For completeness and verification, the PCN should contain all licensed or coordinated frequencies between the transmitter- receiver pair that are controlled by the Owner/Licensee.

All frequencies listed as Coordinated, License Applied For, or Construction Permit Granted will be renewed if this is a Renewal PCN.

Table 2 gives a detailed description of the Path record.

TABLE 2. PATH RECORD FIELDS

Field	Max Length	Description of Data Field	Con/Opt/Req
1	3	Path record number	Req
		- Numbered sequentially in pairs.	
		- Sequence is 01A, 01B, 02A,...	
2	1	Owner/Licensee request	Req
		- C: Change this existing path	
		- D: Turn down this licensed path	
		- R: Remove path from Coordination	
		- U: Turn up this new path	
3	1	Path change code	Req
		- N: No Change from previous PCN	
		- A: Path added with this PCN	
		- C: Path changed with this PCN	
4	8	Call Sign	Con
		- Fictitious call signs start with '?'	
		- Req if transmitter	
5	11	Site name	Req
6	2	Site state code	Req
7	1	Latitude/longitude change code	Req
		- C: Changed from previous PCN	
		- N: No change from previous PCN	
8	3	Site latitude, degrees	Req
		Use (-) to indicate South	
9	2	Site latitude, minutes	Req
10	5	Site latitude, seconds	Req
		- hundredths of a second	
11	4	Site longitude, degrees	Req
		Use (-) to indicate East	
12	2	Site longitude, minutes	Req
13	5	Site longitude, seconds	Req
		- hundredths of a second	
14	5	Site ground elevation	Req
		- Above Mean Sea Level, feet	

TABLE 2. PATH RECORD FIELDS (Cont'd)

Field	Max Length	Description of Data Field	Con/Opt/Req
15	12	Owner/Licensee company code	Req
		- Assigned by FCC or Canada	
		- Use 0000 if no code assigned	
16	1	Owner/Licensee company suffix	Opt
		- Use for alternative address	
17	1	Transmitter change code	Req
		- C: Changed from Previous PCN	
		- N: No change from Previous PCN	
18	6	Transmit antenna FCC Code	Con
		- Req if transmitter	
		- Use 0000 if unknown	
19	10	Transmit antenna manufacturer name	Con
		- Req if field 18 is 0000	
20	20	Transmit antenna model number	Con
		- Req if field 18 is 0000	
21	4	Transmit antenna gain	Con
		- dBi in main beam (tenths of a dB)	
		- Req if field 18 is 0000	
22	4	Transmit antenna centerline height	Con
		- AGL, feet	
		- Req if transmitter	
23	4	Transmit antenna pad/line loss	Con
		- dB (tenths of a dB)	
		- Req if transmitter	
24	1	Receiver change Code	Req
		- N: No change from previous PCN	
		- C: Changed from previous PCN	
25	6	Receive antenna FCC code	Con
		- Req if receiver	
		- Use 0000 if unknown	
26	10	Receive antenna manufacturer name	Con
		- Req if field 25 is 0000	

TABLE 2. PATH RECORD FIELDS (Cont'd)

Field	Max Length	Description of Data Field	Con/Opt/Req
27	20	Receive antenna model number	Con
		- Req if field 25 is 0000	
28	4	Receive antenna gain	Con
		- dBi in main beam (tenths of a dB)	
		- Req if field 25 is 0000	
29	4	Receive antenna centerline height	Con
		- AGL, feet	
		- Req if receiver	
30	4	Receive antenna pad/line loss	Con
		- dB (tenths of a dB)	
		- Req if receiver	
31	1	Diversity change code	Req
		- C: Changed from previous PCN	
		- N: No change from previous PCN	
32	6	Diversity antenna FCC code	Con
		- Req if receive diversity	
		- Use 0000 if unknown	
33	10	Diversity antenna manufacturer name	Con
		- Req if field 32 is 0000	
34	20	Diversity antenna model number	Con
		- Req if field 32 is 0000	
35	4	Diversity antenna gain	Con
		- dBi in main beam (tenths of a dB)	
		- Req if field 32 is 0000	
36	4	Diversity antenna centerline height	Con
		-AGL, feet	
		- Req if receive diversity	
37	4	Diversity antenna pad/line loss	Con
		- dB (tenths of a dB)	
		- Required if receive diversity	

TABLE 2. PATH RECORD FIELDS (Cont'd)

Field	Max Length	Description of Data Field	Con/Opt/Req
38	1	Transmit power change code	Req
		- N: No change from previous PCN	
		- C: Changed from previous PCN	
39	5	Transmit power	Con
		- dBm (tenths of a dBm)	
		- Required if transmitter	
40	5	Coordinated power	Con
		- dBm (tenths of a dBm)	
		- Required if APC	
41	5	Licensed (max) power	Con
		- dBm (tenths of a dBm)	
		- Required if APC	
42	1	Equipment change code	Req
		- C: Changed from previous PCN	
		- N: No change from previous PCN	
43	6	Equipment FCC code	Req
		- Use 0000 if unknown	
		- Use 9999 if no equipment	
44	10	Equipment manufacturer	Con
		- Req if field 43 is 0000	
45	20	Equipment model number	Con
		- Req if field 43 is 0000	
46	10	Equipment emission designator	Con
		- Req if field 43 is 0000	
47	6	Equipment transmit stability	Con
		- Percent of carrier	
		- Req if field 43 is 0000	
48	1	Amplifier change code	Req
		- C: Changed from previous PCN	
		- N: No change from previous PCN	
49	6	Amplifier FCC code	Con
		- Req if amplifier module is used	
		- Use 0000 if unknown	
50	10	Amplifier manufacturer	Con
		- Req if field 48 is 0000	
51	20	Amplifier model number	Con
		- Req if field 48 is 0000	

TABLE 2. PATH RECORD FIELDS (Cont'd)

Field	Max Length	Description of Data Field	Con/Opt/Req
52	10	Amplifier emission designator	Con
		- Req if field 48 is 0000	
53	6	Amplifier transmit stability	Con
		- Percent of carrier	
		- Req if field 48 is 0000	
54	1	Loading change code	Req
		- C: Change from previous PCN	
		- N: No change from PCN	
55	7	Transmit loading type	Req
		See Attachment 3	
56	5	Transmit Loading	Req
		- Number of 4kHz voice channels if	
		Analog system	
		- Number of Mbps if Digital system	
		round down to whole number	
		Peak deviation in MHz if Video system	
57	6	Transmit Frequency Plan	Info
58	1	Transmit frequency #1 status	Req
		- Prior-coordinate w/ this PCN:	
		A: Added frequency w/ this PCN	
		P: Polarization changed w/ this PCN	
		N: No change from previous PCN	
		Do not prior coordinate w/ this PCN:	
		U: Under prior-coordination	
		F: Finished prior-coordination	
		G: Planned growth frequency	
		L: License applied for	
		C: Construction permit granted	
		O: Operational	
		T: Temporary	
		R: Removed from operation	
		?: Status unknown. Frequency used	
59	9	Transmit Frequency #1	Req
		- MHz	

TABLE 2. PATH RECORD FIELDS (Cont'd)

Field	Max Length	Description of Data Field	Con/Opt/Req
60	1	Transmit frequency #1 polarization	Req
		- B: Both horizontal and vertical	
		- C: Circular	
		- H: Horizontal	
		- L: Left (45 deg CCW from vertical)	
		- R: Right (45 deg CW from vertical)	
		- V: Vertical	
		- ?: Unknown	
61	1	Transmit Frequency #2 Status	Opt
62	9	Transmit Frequency #2	Opt
63	1	Transmit Frequency #2 Polarization	Opt
64	1	Transmit Frequency #3 Status	Opt
65	9	Transmit Frequency #3	Opt
66	1	Transmit Frequency #3 Polarization	Opt
67	1	Transmit Frequency #4 Status	Opt
68	9	Transmit Frequency #4	Opt
69	1	Transmit Frequency #4 Polarization	Opt
70	1	Transmit Frequency #5 Status	Opt
71	9	Transmit Frequency #5	Opt
72	1	Transmit Frequency #5 Polarization	Opt
73	1	Transmit Frequency #6 Status	Opt
74	9	Transmit Frequency #6	Opt
75	1	Transmit Frequency #6 Polarization	Opt
76	1	Transmit Frequency #7 Status	Opt
77	9	Transmit Frequency #7	Opt
78	1	Transmit Frequency #7 Polarization	Opt

TABLE 2. PATH RECORD FIELDS (Cont'd)

Field	Max Length	Description of Data Field	Con/Opt/Req
79	1	Transmit Frequency #8 Status	Opt
80	9	Transmit Frequency #8	Opt
81	1	Transmit Frequency #8 Polarization	Opt
82	1	Transmit Frequency #9 Status	Opt
83	9	Transmit Frequency #9	Opt
84	1	Transmit Frequency #9 Polarization	Opt
85	1	Transmit Frequency #10 Status	Opt
86	9	Transmit Frequency #10	Opt
87	1	Transmit Frequency #10 Polarization	Opt
88	1	Transmit Frequency #11 Status	Opt
89	9	Transmit Frequency #11	Opt
90	1	Transmit Frequency #11 Polarization	Opt
91	1	Transmit Frequency #12 Status	Opt
92	9	Transmit Frequency #12	Opt
93	1	Transmit Frequency #12 Polarization	Opt
94	1	Transmit Frequency #13 Status	Opt
95	9	Transmit Frequency #13	Opt
96	1	Transmit Frequency #13 Polarization	Opt
97	1	Transmit Frequency #14 Status	Opt
98	9	Transmit Frequency #14	Opt
99	1	Transmit Frequency #14 Polarization	Opt
100	1	Transmit Frequency #15 Status	Opt
101	9	Transmit Frequency #15	Opt

TABLE 2. PATH RECORD FIELDS (Cont'd)

Field	Max Length	Description of Data Field	Con/Opt/Req
102	1	Transmit Frequency #15 Polarization	Opt
103	1	Transmit Frequency #16 Status	Opt
104	9	Transmit Frequency #16	Opt
105	1	Transmit Frequency #16 Polarization	Opt
106	1	Transmit Frequency #17 Status	Opt
107	9	Transmit Frequency #17	Opt
108	1	Transmit Frequency #17 Polarization	Opt
109	1	Transmit Frequency #18 Status	Opt
110	9	Transmit Frequency #18	Opt
111	1	Transmit Frequency #18 Polarization	Opt
112	1	Transmit Frequency #19 Status	Opt
113	9	Transmit Frequency #19	Opt
114	1	Transmit Frequency #19 Polarization	Opt
115	1	Transmit Frequency #20 Status	Opt
116	9	Transmit Frequency #20	Opt
117	1	Transmit Frequency #20 Polarization	Opt

EXAMPLE

The following is an old example of the Electronic Terrestrial Microwave Prior Coordination Notice. Only the data and <CR> <LF> would be entered. The record number and types are for illustration purposes only. The challenge to the reader is to rewrite this example using the updated EPCN format for terrestrial stations.

Record 1 (PCN Record):

Ter~0015~~88282001A~052088~Jeff Rosenblatt~Mngr, Com Car MW-Terr MW Svcs~11720
Sunrise Valley Drive~Reston~VA~22091~70362063 00~2820~~~~~Cherry Vly -
Canajoharie & Northville 6 GHz~Ce nterline Changes. Note that these updated centerlines on
th is PCN will also be implemented for the other frequencies at this
site.~S~882820019~091388~112088~2<CR> <LF>

Record 2 (Path Record):

01A~U~C~KEA64~Cherry
Vly~NY~N~42~46~28.05~74~40~53.05~2213~2820~~C~A63400~~~~105~9.0~N~~~~~N~~
~~~~~N~37.0~N~2RIV01~~~~~N~~~~~N~VIDEO~15~N~6048.979~H~~~~~  
~~~~~  
~~~~~<CR> <LF>

### Record 3 (Path Record):

01B~U~C~~Canajoharie~NY~N~42~53~47.05~74~35~44.05~780~2820~~N~~~~~N~A63000  
~~~~~7~0~N~~~~~N~N~2RIV01~~~~~N~~~~~N~VIDEO~15~  
~~~~~  
~~~~~<CR> <LF>

Record 4 (Path Record):

02A~U~C~KEA64~Cherry
Vly~NY~N~42~46~28.05~74~40~53.00~2213~2820~~C~A63400~~~~95~9.0~N~~~~~N~~
~~~~~N~37.0~N~2RIV01~~~~~N~~~~~N~VIDEO~15~N~6048.979~H~~~~~  
~~~~~  
~~~~~<CR> <LF>

### Record 5 (Path Record):

02B~U~C~~Northville~NY~N~43~13~7.05~74~9~16.05~940~2820~~N~~~~~N~A73200~~~



70 0 N N N 2RIV01 N N VIDEO 15  
<CR> <LF>